

REFLECTIONS / REFRACTIONS

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University Lowbrow
Astronomers

Volume 30, Issue 2

February 2006



Looking north at Cherry Springs State Park, PA—Image by Gary A Becker—2005

Music of the Night Skies

*When we quiet our soul and listen,
We can hear the golden moon.....
Through the silence, and the distance,
We can hear the cosmos, tune.....*

*When we still our soul and listen,
We can hear the Milky-way,
And the music of each planet,
As it spins along it's way.*

*All the Universe is singing,
But we never hear.....until,
We quiet our soul and listen,
For to hear,we must be still.*

Anna Scott - July 3, 2004

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Anna Scott, Astro-Poet

Important Club Info

- February 4, 2006 - Public Open House at Peach Mt. (starts at Dusk)
- February 17, 2006 - University Lowbrow Astronomers' monthly meeting, guest speaker; Dr. David Gell, (Dept. of Atmospheric, Oceanic & Space Sciences U of M) 7:30pm room 130, Dennison Bldg.
- February 25, 2006 - Public Open House at Peach Mt. (starts at Dusk)
- March 4, 2006 - Public Open House at Peach Mt. (starts at Dusk)



Left—Chris Sarnecki, a man with a problem.

Image by M. S. Deprest



Right—The Helix Nebula (Chris's problem)

Image by David Malin, Royal Observatory, Edinburgh / Anglo-Australian Observatory—Public Domain

Phat Planetaries

By Christopher Sarnecki

Hi. My name is Chris, and I have a problem; a planetary problem. Never mind that just a few short years ago I would never even look at these things. I started down this path unwittingly. Initially I noticed those famous Messier planetaries M27, M57, M76, and M97. I should have stopped here, but no; my so called friends, members of the Lowbrows, turned me on to some bright NGC planetaries. Pretty soon I found out I couldn't help myself. I had to have more planetary photons. It got so bad, that at the recent Black Forest Star Party 05, after two days of serious planetary observing, on the third night I declared I would spend my remaining observing time enjoying big bright common astronomical objects. No challenge objects here, just fun and easy going observing (i.e. - No more planetaries!). After a few so-so galactic clusters of the night vision destroying kind, I found myself migrating back to getting some planetaries fixes. Not those pesky little orbs of the single arc second size, but BIG PHAT arc minute busting behemoths. Now I know what you are thinking. This guy likes his astronomical objects big and chunky. Damn straight. Bring it on.

The list below represents some huge planetary nebulae for your observing pleasure. I performed this observing run at Peach Mountain on our October 1st, 2005, Open House, figuring some of you might think these objects can't be seen in our skies. That night was one to remember as the Lowbrows in attendance will recall. Possibly the steadiest skies I ever witnessed in a decade of observing. The seeing enabled me to see things better than at Black Forest, so perhaps it's not a fair test of Peach Mountain. None the less, it is possible to see these objects if you choose. My Peach mountain notes follow the Black Forest notes.

<u>Catalog No.</u>	<u>Mag</u>	<u>Size</u>	<u>Coordinates - RA/Dec</u>	<u>Const</u>	<u>Remarks</u>
NGC 7008	10.7	1.4'	21h00m/54^33'	Cyg	Big and bright, though hard to find in this nondescript Cygnus star field. Peach Mtn - Fan shaped nebula with brightening to one side, 3 field stars superimposed on nebula.
NGC 6905	11.1	40"	20h22m/20^06'	Del	Blue Flash Nebula. A 15.7 central star flashes in and out of vision when observed at zenith. Peach Mtn - A very round shape planetary. A keystone of four stars helps locate this object.
NGC 6781	11.4	1.8'	19h18m/06^33'	Aql	Very large with even density nebulosity across a round disk. Nice bright star on the edge of the disk. Peach Mtn - This one is huge, but faint (low surface brightness).

Intermission - Wisconsin Micro Brews, Pt 2

6/22/05 - BluCreek Brewing, Altbier - So flat because it must have been bottled at a high altitude. What the purpose of this beer?

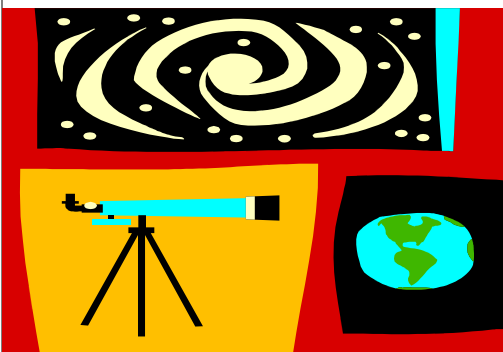
6/23/05 - Capital Brewery, Blonde Doppelbock - This beer is nice to look at, but what beer isn't.

6/24/05 - New Glarus Brewing Co., Fat Squirrel Ale - This beer disappeared fast, just like a bunch of fat squirrels.



Catalog No.	Mag	Size	Coordinates - RA/Dec	Const	Remarks
NGC 6804	12.0	1.1'x30"	19h31m/09^13'	Aql	Irregularly round disk with uneven brightness. 12 th mag central star and bright star on edge of disk make this object noticeable. Peach Mtn - A fainter field star opposite the brighter edge star help frame this nebula.
NGC 7048	12.1	1.0'	21h14m/46^17m	Cyg	Found just after the North American nebula, this one is faint but large. Peach Mtn - Yea this one is faint. A nice little cluster of stars off to one side with a brighter star embedded in the edge of the nebula.
NGC 7293	7.5	16'x12'	22h30m/-20^48'	Aqr	Helix Nebula. 300ly. Biggest of big w/ low surface brightness. This has to be everyone's favorite NGC planetary.
<u>Some Challenge Objects follow:</u>					
NGC 7139	13.0	1.3'	21h46m/63^47'	Cep	Skyhound indicates this one isn't faint enough to be a challenge object. I don't know what planet they observe from, but any extended object that is mag 13 is a challenge in my book.
Abell 39	13.0	2.9	16h27m/27^54'	Her	This is one planetary I gotta see. Billed as possibly the most spherical of all planetaries (John, we may need to get the 61 on this one).
NGC 246	10.9	4.1	00h47m/-11^52'	Cet	I'll end with this one. It's nicely placed for fall viewing.

OK, this is getting ridiculous. If anyone knows where I can get some therapy sign me up. Otherwise, catch me bathing my eyeball in some more planetary photons anywhere there are some clear night time skies.



Right—Aaron Thero, the proud papa of a bouncing baby 8" Dob! ... Aaron is the one in the background!

Image by Aaron Thero, taken at the Sports Park Parking Lot, 8 mile & Napier Rd. 02:00 01/22/06



How I Fell in Love!

By Aaron Thero

Astronomy...If astronomy were human I'd ask it to marry me. I LOVE ASTRONOMY. It all goes back to when I was three or four. My mother and I were sitting on our trailer porch in San Diego, CA. My mother was pointing out Orion's belt (or what she and I thought was Orion's belt) when I saw a flaming ball in the sky. My mother didn't see the flaming ball but I drew many pictures of it and my mother concluded it to be a comet.

Some years later I would come to find out the belt was Ursa Major and the fire ball was probably a shooting star (meteor). I found this all out around the ages of 5-8 when I moved to Michigan and started going to the library reading on comets, planets, and stars. I was interested for a while but like any child moving and changing schools I lost interest or forgot about it completely. Then one day my teacher announced we will all be making a trip outside to experience a solar eclipse she told us not to look at it directly...but again I was young and naive so I looked directly at it (this had been my second time looking directly at the sun) and it was beautiful imprinted in my mind forever. To see the moon practically covering the sun was AWESOME!!! Kids in the class went crazy when the sky went dark in the middle of the day. I just sat there and smiled watching everything turning yellowish-green.

After that we moved a couple more times. I once saw a star when the sun was setting much later found out this was Venus. Again I forgot all about astronomy. Some years and a couple more unfortunate events later, I think it was 98 or 99. Mars was very bright and Venus was also visible I remember showing my mom and my girlfriend of the time and felt very proud I could spot them out. Hale-Bopp was also around this time. It was AW-SOME. I remember it was really close to the moon and I looked at the sky for two weeks straight! Again the urge died.

It wasn't until the lunar eclipse a couple years ago that I got back into astronomy. I actually neglected work to watch the lunar eclipse. That year I saw three shooting stars one of them was on a ten degree angle and very low in the sky I TOLD EVERYONE. I continued watch the sky periodically to see Mars and a few stars.

The spring of '05 my fiancé's father gave us free tickets to the new Detroit science center. They sat around the apartment for months. I saw them on top of the microwaves and realized they expired in two days. Thankfully I had the next day off so we went to the science center. Fortunately it was the opening day of the new space exhibit. The science center gave us free passes to the planetarium and a free sky map (BOOM I was hooked forever). After the planetarium I could recognize Cassiopeia, Mars, Venus, Orion, and the Pleiades in the night sky, now I wanted to gaze at the sky every night.

I had an old pair of binoculars from K-mart and they were great but I wanted more. Next I went to my apartment complex's Main office and started looking on their computer for scopes online, where I found Ryder's Hobby Shop. I went looking there but Ryder's had no bang for my buck. Dave, a very nice person, showed me an Orion catalog; I couldn't decide which scope to get. Dave then informed me about Ryder's weekly star party where I could try some scopes out. I arrived as early as my schedule allowed speeding on the way there with my fiancé in tow. I met Nathan Murphy and Bobby G. there, and after looking thru the Porta-Ball, I was doubly hooked. During that star party is where I decided to get the 8" Dobsonian reflector, bigger aperture less maneuverability, a good choice later told by many astronomers as well. I then asked if they were part of an astronomy club and they gave my site to the University Lowbrow Astronomers. I pledged my twenty dollars and showed up that night to a Public Open House Event, where I met a lot of people including D.C Moons he showed me M13 in the McMath (I was totally blown away!)

It was three weeks late on delivery but my dob finally showed up! The first night out I stumbled upon the ringed wonder SATURN! I screamed like a little girl at a Backstreet Boys concert, this is when I realized that astronomy was to be my life.

Astronomy is the reason I decided to go to college and get a future. Astronomy is the reason I bought a computer, to get connected to the world. Astronomy is the most positive thing that has ever happened in my life. The rest is history...Astronomy will you marry me?



Setting up at Peach Mt. for a long night of astronomy! - image by Doug Scobel



University Lowbrow Astronomers
Galaxy T-shirts & Sweatshirts
2006 Version

This year we will again make the Galaxy design t-shirts and sweatshirts available to the Lowbrows. There may be minor modifications (like a mixed case “Ann Arbor, Michigan” at the bottom), but in general, it will still be a white galaxy surrounded by yellow/gold text on a navy t-shirt or sweatshirt. T-shirts are 6.1 oz, 100% cotton and the sweatshirts are 9.3 oz, 50/50 cotton/polyester.

There was interest in a hooded and zippered sweatshirt, but the printer discouraged that combination for several reasons. The zipper would require a smaller design on one side, which would be a separate setup and incur an additional fee. A non-zippered, hooded sweatshirt has a muff pocket, which would push the logo up higher towards the neckline or need a smaller logo to center it. Also, if we put the logo on the back of the item, the hood would obscure it, unless the logo were placed very low on the back or made smaller. For these reasons, we will go with only t-shirts and sweatshirts this time. (If you insist on getting a hooded, zippered sweatshirt with a full-size logo obscured on the back, see me.)

As was discussed at the last meeting, I will take pre-orders for any size (S, M, L, XL, XXL, XXXL) of t-shirt or sweatshirt. Only members can order sweatshirts, although they can order as many as they want. Members and non-members can order t-shirts. I will also order extras as gifts to guest speakers and for sale by the club. The extras will be limited to t-shirts of sizes L and XL (I may throw in a few Ms, too). Any other size must be pre-ordered.

The cost is based on the setup fee and number of items ordered. Any mix of sizes and types (t-shirt vs. sweatshirt) can be ordered to count towards the volume range (25-50, 51-99, 100-250, 251-500, etc.). I am hoping that we can purchase at least 100 items, so have priced the items with this as the target. If I get too few orders, the price may go up.

In order to reasonably reach the 100-item order, I would like to see at least 60 items pre-ordered. That would leave around 15 reserved as speaker gifts and 25 more to sell. I’m counting on people volunteering to sell them at Open Houses or at Star Parties. I’m willing to accept fewer pre-orders if members volunteer to sell t-shirts at events (Open Houses, Black Forest Star Party, Astronomy on the Beach at Kensington, etc.)

The prices are as follows.

	Sizes S, M, L XL	Sizes XXL, XXXL
T-shirt, 6.1 oz, 100%cotton	\$15	\$16
Crewneck sweatshirt, 9.3 oz, 50/50	\$23	\$25

I will take orders by e-mail (hilligk@hotmail.com), at the monthly meetings, or through the mail (Kathy Hillig, 7654 W. Ellsworth Rd., Ann Arbor, MI 48103). All pre-orders must be received by February 28, 2006. As with the Calendars and Observer’s Handbook, you pay when you pick up your order. Unlike the Calendar/Handbook sale, I’m willing to ship orders to members who don’t live in Southeast Michigan, with prepayment and a small postage charge (\$5 and up depending on # of items).

**REFLECTIONS / REFRACTIONS**

Please fill out this form and return to me or e-mail the info to hilligk@hotmail.com.

NAME:		PHONE/Email:	
Qty	T-shirts	Qty	Sweatshirts
	Small T-shirt - \$15		Small Sweatshirts - \$23
	Medium T-shirt - \$15		Medium Sweatshirts - \$23
	Large T-shirt - \$15		Large Sweatshirts - \$23
	X-large T-shirt - \$15		X-large Sweatshirts - \$23
	XXL T-shirt - \$16		XXL Sweatshirts - \$25
	XXXL T-shirt - \$16		XXXL Sweatshirts - \$25
	Total T-shirts		Total Sweats
TOTAL # ITEMS:		TOTAL \$	

An ACNO report

Some of you may not be aware of the ACNO group in the Lowbrows; ACNO stands for Any Clear Night Observers and consists of Lowbrow members who take it upon themselves to organize impromptu observing session on any clear night. These sessions can be held just about anywhere from Peach Mt to John Causland's driveway to Leslie Park to Lake Hudson State Recreation Area and are not part of the Lowbrows' normal open house schedule. These sessions are usually organized by email and at the last minute, but can sometime prove to be quite wonderful, if you are interested in being part of this sub-group, email msdeprest@comcast.net

Here are a few observing reports of typical ACNO sessions:

Dateline: 01.12.06 --- Intrepid Lowbrows

By John Causland

Flying in the face of conventional wisdom, Jim Forrester and Mike Radwick joined me in thumbing our noses at the pesky moon tonight, in search of extra-solar photons (important to recall that moonshine is slightly delayed and reflected sunshine...) After 2 months of extreme deprivation, the likes of which none of us can recall, any opportunity to observe was a good opportunity. The hole lasted until 10:30, so 4 hours of 40 degree observing was quite satisfactory.

We brought out our various unused Christmas presents and put them to the test tonight. However, I'm sworn to not reveal the nature of some of them for the purposes of future unveilings. See, you should have been there! Anyway, it had been so long that hitting the usual open clustered Messiers was fun, taking a side trip to some nebulosity in Orion, and triple and quadruple stars in the vicinity. Getting away from Luna, we zipped around Cassiopeia and M34, M31, M32, and even M76, (The little dumbbell) was cooperative. We got some NGC Open Clusters in for good measure too.

Though an ever present breeze blew and shook the sails of the 61's shroud, we got some Martian detail and capped the evening off finally with Saturn breaking the tree line. The Cassini and the crepe ring obliging, but shakiness obscuring Encke's division. It'll be a fun season ahead with Saturn keeping us company and entertaining the "Open Housers."

Sorry for the extended detail, but thought it would be good to remind Lowbrows what that long forgotten, out of sight out of mind, "observaytin'" experience is like.

At least a few of us got the year off to an extended evening's start and replenished photons.



Dateline 01.14.06 --- Full Moon & Full House

By Mark S Deprest

Even with the Full Moon rising, those intrepid Lowbrows again found themselves back at John Causland's house on Saturday night fighting for ever photon they could gather. This time John, Jim and Mike were joined by Yasu & Yumi Inugi, Ken Cook & son Paul, and me and no one was disappointed. The skies were crisp and clear, the wind was almost negligible, Mars gave up lots of surface detail and Saturn's ring system wowed us.

Mike took over the 61 and hunted down a half 'a dozen Open Clusters, and from time to time when John could gain control of his own scope he'd slew it over to some real eye candy, like the Great Orion Nebula.

Yasu & Yumi had brought a couple of very cool "toys" including their digital camera, which they managed to document the evening with, taking moonlight photos of the group in fifteen second exposures (featured on the back page). They also brought along a couple of the coolest "Home Planetarium" that anyone of us had ever seen. Yasu demonstrated one of them at the January meeting, if you missed it; you real missed a cool presentation.

We all took turns entertaining young Paul Cook by showing him some of the night's best features, including an extremely filtered look at the Full Moon. Toward the end of the night I pulled out the UHC filter and attached it to my 38mm Erfle and then slid my 12.5" over to M42, for a wide field look at all the nebulosity. Sometimes you just need to absorb that nebulous light in its entirety!

Dateline 01.21.06 --- Observing at "The Hill" in January—Priceless

by Doug Scobel

We came. We observed. And we didn't freeze any extremities either! On the evening of Saturday January 21, 2006, the clouds parted and we were treated to what one might call a special night of observing at Peach Mountain.

Jim Forrester, Mark Deprest, Nate Murphy, Mike Radwick, Yasu & Yumi, Bobby & Joni G, David Tucker, Jim & Kelly & family (sorry, I don't know your last name), and yours truly gathered at Peach Mountain on the evening of January 21, 2006, for some long-awaited photon gathering. It was a particularly mild evening, for January at least, with temperatures falling from the mid-30s "only" down to the mid-twenties by midnight. Almost balmy!

I brought a borrowed Vixen Great Polaris mount for a shake down cruise. I was considering buying it from Nathan Murphy, who had loaned it to me for evaluation. I planned to snap a few wide field images by piggy-backing my old OM-1 film camera on it, and also try his 80 mm TMB refractor on it, to see how well the RA drive tracks. Knowing that Saturn was nearing opposition, I also brought my eight-inch f/8 "Mars Scope" for some high-power viewing between exposures.

The "stars" of the evening weren't stars at all – but planets. As the sky darkened, Mars was an obvious target nearly straight overhead. The Red Planet, well past opposition, is fast receding from Earth, but it still shone at a decidedly orange magnitude zero. Its obviously gibbous disk (only 90% illuminated) had shrunk to just under ten arc seconds top to bottom, but it still gave up some detail in the eyepiece. Mares Sirenum and Cimmerium could still be seen running diagonally across the southern hemisphere. Boy, the air sure is steady tonight we all agreed.

Later in the evening, as it gained some altitude, most of us turned our scopes towards the spectacular ringed world Saturn. And it did not disappoint. Less than a week before opposition, it appeared about as large as it ever does. And the ring plane, while slowly closing, is still open quite wide, allowing for some good detail in the rings to be seen. Cassini (the division in the rings, not the orbiting spacecraft!) was obvious, but we could

also see some graduated shading in the rings. The inside of the B ring was clearly a darker gray than the outer portions, and the C ring, also known as the crepe ring, also made an appearance. During particularly steady moments, which were frequent in the earlier part of the evening, we thought we could see some darkening in the middle of the A ring, which is sometimes called the Encke Minima (not to be confused with the Encke division, which requires near perfect seeing and optics to observe). Even though Saturn was less than a week from opposition, one could see just the thinnest hairline of a shadow from the ball of the planet falling on the far side of the rings on one side. Several faint yet obvious cloud bands were visible across the globe, and when the air settled I saw an irregular outline on the most prominent one near the equator. And of course there were several moons scattered around the planet. It was an unforgettable sight - the steadiness really *was* exceptional. I'm glad the Mars Scope works on other planets too!

We took advantage of the good seeing and also partook of some close doubles. Like a 1.5 arc second beauty in Orion, which we were all pretty much able to split. And another one nearby which was not real close but had a beautiful contrast. The primary was a brilliant orange with the faint companion being a rich blue. Of course we had to spend some time on the Trapezium, in the heart of the Orion nebula. The four main stars were very cleanly split, and were joined by the 11th magnitude E and F stars in most scopes. We even thought we glimpsed one of them momentarily in Nate's 80mm TMB. Or maybe we were using averted imagination?

The Great Polaris mount proved itself to work superbly. With Nate's refractor on it, even at magnifications over 100 per inch of aperture, centered objects stayed centered. I even set a bright star right at the edge of the field of view but I was unable to detect any movement over a few minutes. I had a little bit of trouble with the camera, the shutter was a little slow to close after being open for several minutes, but I still got some good wide field shots of the constellation Orion. Even with the 200mm lens, and an exposure time of five minutes, without guiding, stars are pinpoints right to the corners. Yes, this mount is a keeper, and I've since happily handed my payment over to Nate.

I would like to take this opportunity to mention something about headlight etiquette at Peach Mountain, particularly when we are set up near the radio dish as we were that night. Several times folks drove up to that area with their headlights on, which was most disturbing to those of us who were dark adapted, or who were trying to take astrophotos (as I was). *Please*, if you must arrive after dark, then drive up with your parking lights only. If your vehicle won't let you turn off the headlights, then please stop further down the road before you flood the observing area with unwanted photons. And please be sensitive of your backup lights, too, which are also white. Don't put your car into reverse until you are ready to go, so that they are on for as short a time period as possible. And please, make an announcement beforehand so that everyone has time to turn away and cover lenses.

Thanks, I feel better now.

I'm not sure what all everyone else was observing. I know Mark was trying a galaxy trio or two. The Eskimo nebula in Gemini made an appearance, and I'm sure the bright open clusters in Auriga and Gemini, as well as the Double Cluster, did as well. It was after midnight before many of us left, when toes were finally complaining about the lack of heat. But being able to observe several hours in Michigan in January? – Priceless!

Stargazing in Michigan in the winter can be daunting, from week after week or even month after month with nothing but clouds, to the risk of frostbite when it finally does clear. Which is why I like to say that, "observing in these parts ain't for sissies". So when we are finally blessed with clear skies, relatively mild temperatures, with no moon, superb atmospheric seeing, and on a Saturday night no less, then that's pretty special. Pretty special indeed!



*ACNO at John Causland's House 01.14.06 - above, above right, below—
images by Yasu & Yumi Inugi*

*Right—Orion, The Hunter by Doug Scobel 01.21.06 at "The Hill"
100mm f/2.8 5minutes*



"Stars and Moon"

*Sparkling diamonds in the heavens,
Sovereign white globe of reflected light,
In silence.....You shine on ALL mankind.*

*Looking "UP", exploring the night-skies,
We find PEACE in viewing your gentle lights,*

*With deep gratitude, we give Thanks!
For without your distant glow,
Our nights would be total darkness..*

Anna Scott—2006



Simulated image of Moon & Pleiades occultation 01.10.06 created by Starry Night



Here's a portrait that I took on Saturday night at Peach Mountain of Orion's belt and sword. Besides M42/43, NGC 2024 just east of zeta Orionis is visible.

I piggybacked my Olympus OM-1 film (yes, film!) camera on Nathan's (soon to be my) Vixen Great Polaris mount. 200 mm lens, 5 minutes at f/4, unguided, on Kodak "High Definition" ISO 400 print film. Scanned and moderately processed using Paint Shop Pro 8.

Those of you who weren't there missed a particularly good (very steady!) night at "The Hill."

"Clear Skies"

*Full moon rising...edge of night,
Evening stars...becoming bright,
Starry night...reaching down,
Touching treetops...that surround,
What joy and beauty...so complete,
When CLEAR night-skies...shine on me.*

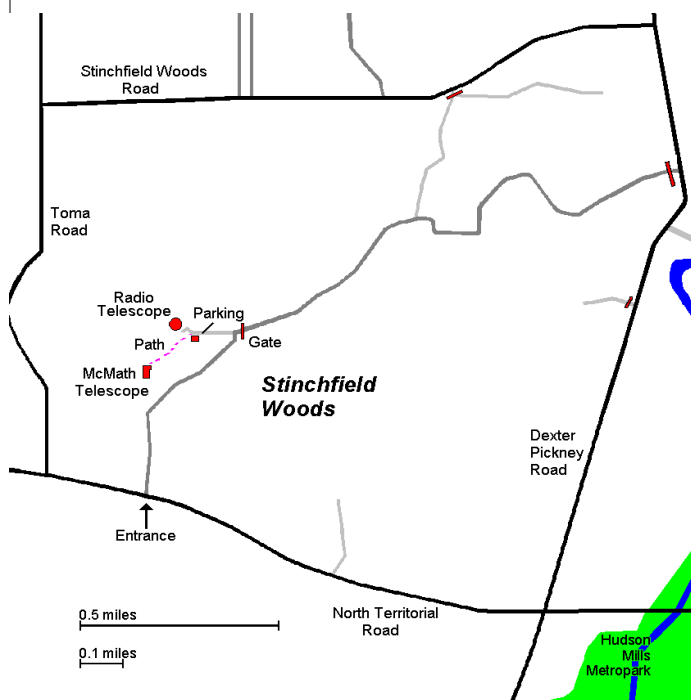
Anna Scott - Lowbrows 2006



Places & Times

Dennison Hall, also known as The University of Michigan's Physics & Astronomy building, is the site of the monthly meeting of the University Lowbrow Astronomers. Dennison Hall can be found on Church Street about one block north of South University Avenue in Ann Arbor, MI. The meetings are usually held in room 130, and on the 3rd Friday of each month at 7:30 pm. During the summer months and when weather permits, a club observing session at the Peach Mountain Observatory will follow the meeting.

Peach Mountain Observatory is the home of the University of Michigan's 25 meter radio telescope as well as the University's McMath 24" telescope which is maintained and operated by the Lowbrows. The observatory is located northwest of Dexter, MI; the entrance is on North Territorial Rd. 1.1 miles west of Dexter-Pinckney Rd. A small maize & blue sign on the north side of the road marks the gate. Follow the gravel road to the top of the hill and a parking area near the radio telescopes, then walk along the path between the two fenced in areas (about 300 feet) to reach the McMath telescope building.



Public Open House / Star Parties

Public Open Houses / Star Parties are generally held on the Saturdays before and after the New Moon at the Peach Mountain observatory, but are usually cancelled if the sky is cloudy at sunset or the temperature is below 10 degrees F. For the most up to date info on the Open House / Star Party status call: (734)332-9132. Many members bring their telescope to share with the public and visitors are welcome to do the same. Peach Mountain is home to millions of hungry mosquitoes, so apply bug repellent, and it can get rather cold at night, please dress accordingly.

Membership

Membership dues in the University Lowbrow Astronomers are \$20 per year for individuals or families, and \$12 per year for students and seniors (age 55/+). This entitles you to the monthly Newsletter and use of the 24" McMath telescope (after some training). Dues can be paid at the monthly meetings or by check made out to University Lowbrow Astronomers and mail to:

The University Lowbrow Astronomer c/o Kathy Hillig
7654 W. Ellsworth Road
Ann Arbor, MI 48103

Membership in the Lowbrows can also get you a discount on these magazine subscriptions:

Sky & Telescope - \$32.95 / year

Astronomy - \$29.00 / year

For more information contact the club Treasurer. Members renewing their subscriptions are reminded to provide the renewal notice along with your check to the club Treasurer. Please make your check out to: "University Lowbrow Astronomers"

Newsletter Contributions

Members and (non-members) are encouraged to write about any astronomy related topic of interest. Call or Email the Newsletter Editor: **Mark S Deprest (734)223-0262** or msdeprest@comcast.net to discuss length and format. Announcements, articles and images are due by the 1st day of the month as publication is the 7th.

Telephone Numbers

- | | | |
|-----------------------|-----------------|----------------|
| President: | Charlie Nielsen | (734) 747-6585 |
| Vice Presidents: | Jim Forrester | (734) 663-1638 |
| | Bernard Friberg | (734) 761-1875 |
| | Bob Grusczyński | (734) 461-1257 |
| Treasurer: | Kathy Hillig | (734) 663-8699 |
| Observatory Director: | D. C. Moons | (586) 254-9439 |
| Newsletter Editor: | Mark S Deprest | (734) 223-0262 |
| Key-holders: | Bernard Friberg | (734) 761-1875 |
| | Fred Schebor | (734) 426-2363 |
| | Charlie Nielsen | (734) 747-6585 |
| | Mike Radwick | (734) 453-3066 |
| | Paul Walkowski | (734) 662-0145 |
| Webmaster | Dave Snyder | (734) 747-6537 |

Lowbrow's Home Page

<http://www.umich.edu/~lowbrows/>

Email at:

Lowbrow.Astronomers@umich.edu

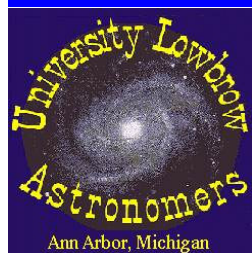


University Lowbrow Astronomers

Kathy Hillig
7654 W. Ellsworth Road
Ann Arbor, MI 48103

Phone: 734-663-8699
E-mail: hilligk@hotmail.com

Reflections & Refractions



Website

www.umich.edu/~lowbrows/

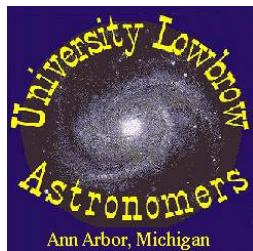


ACNO—Night at John Causland's house.

Yumi Inugi checks out Saturn and its moons and ring system thru Mark's 12.5" dob.

Mark stands by waiting for his opportunity look thru his own scope ... looks like it might be a long wait.

Image by Yasu Inugi



University Lowbrow Astronomers
7654 W. Ellsworth Road
Ann Arbor, MI 48103